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PATENTS
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IN THE U.S. PATENT AND TRADEMARK OFFICE

In re application of

Gilles Louis ARNAUD

Conf. 6229

Application No. 10/823,582

Group 3644

Filed April 14, 2004

Examiner S. Holzen

LIFTING SURFACE PROVIDED WITH AT LEAST
ONE ROTARY FLAP

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Assistant Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

November 24, 2006

Sir:

Appellant requests a pre-appeal brief review of the final rejection in the above-identified application. No amendments are being filed with this request.

A Notice of Appeal is filed herewith.

The review is requested for the reasons advanced on the attached sheets.

Respectfully submitted,

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REASONS IN SUPPORT OF REQUEST FOR REVIEW

A pre-appeal brief review is respectfully requested because the rejections of the claims include a clear legal error and a clear factual error, as explained below.

Claims 1-11 and 13-21 are pending. Claims 2, 4, and 6 have been withdrawn from consideration. Claim 12 was canceled. Claim 1 is the only independent claim.

Claims 1, 3, 5, 7-17, and 20-21 were rejected as unpatentable over PHILLIPS 6,970,773 in view of MUNOZ SAIZ 6,109,567; and claims 18-19 were rejected further in view of MILLER et al. 6,764,047.

Claim 1 defines a lifting surface with a flap in which the inner surface (9) and the outer surface (10) of the flap have, beyond 25% of the flap chord CO, shapes that are not concave, in which the first trailing edge (8) of the flap has a main angle (α) included between 10° and 30° , in which the axis of rotation (4) of the flap is situated at a first distance (C1) from the first leading edge (7) that is between 15% and 35% of the chord (CO) of the flap (1), and in which the clearance (13) between the flap leading edge and the trailing edge of the lifting surface is between 1.5% and 3.5% of the chord (CO) of the flap (1).

The Examiner acknowledges that neither PHILLIPS nor MUNOZ SAIZ discloses these exact dimensions, but takes the position that one of skill in the art would find it obvious to optimize these dimensions because aeronautical engineers have

for years modified the shape of airfoils to alter the lift and drag of airfoils and flaps.

Optimization of a variable may be patentable when the variable was not previously known to be result effective *In re Antonie* 195 USPQ 6 (CCPA 1977). The invention of claim 1 provides, among other features, that the axis of rotation (4) of the flap is situated at a first distance (C1) from the first leading edge (7) that is between 15% and 35% of the chord (CO) of the flap (1) and that the clearance (13) between the flap leading edge and the trailing edge of the lifting surface is between 1.5% and 3.5% of the chord (CO) of the flap (1).

There is no evidence of record that the location of the axis of rotation and the clearance as claimed are variables whose optimization would alter lift or drag. Indeed, the present invention is related to the reduction of a hinge moment of a flap (page 1, line 10 through page 2, line 8), not to altering lift or drag, and one of skill in the art tinkering with the shape of the airfoil or flap to alter the lift or drag would not be motivated to change both the location of the axis of rotation and the clearance between the flap leading edge and the trailing edge of the lifting surface as claimed because there is nothing in art to suggest doing so. The art does not recognize that these are result effective variables.

Further, there is no suggestion in the references to optimize each of (a) the flap shape beyond 25% of the flap chord, and (b) the main angle of the trailing edge of the flap, and (c) the location of the axis of rotation of the flap, and (d) the clearance as claimed in claim 1. One of skill in the art would not find motivation in the references to modify all of these as claimed. Indeed, the combination of these features produces an unexpected result; namely a greatly reduced hinge moment as explained in the specification. There is nothing in the references that would lead one of skill in the art to expect that the hinge moment would be reduced by combining these features in the manner claimed. An unexpected result provides patentability even to optimized variables that are known to be result effective *In re Antonie*, supra.

The failure to present evidence that the location of the axis of rotation and the clearance as claimed are variables whose optimization would alter lift or drag is a legal error. Further, it is a legal error to fail to offer motivation to modify all of (a) the flap shape, (b) main angle, (c) location of the axis of rotation, and (d) clearance as claimed. Accordingly, the rejection of claim 1 includes clear legal errors and should not be sustained.

Dependent claims 11 and 13-15 further define these features and are allowable because there is no suggestion to

optimize these features as claimed. The other dependent claims are allowable for the reasons given above.

With further regard to claims 18-19, MILLER et al. discloses a string that acts as a hinge between a lifting body and a flap in a model airplane. The string is not longitudinally extended (it is laterally extended) and does not seal off the clearance as claimed. Asserting that a string will seal off the clearance is a factual error, and this rejection should not be sustained.

Accordingly, the rejection of claims 1, 3, 5, 7-11, 13-17, and 20-21 includes legal errors and the rejection of claims 18-19 includes a factual error. Both rejections should be withdrawn.

The Examiner asserts in paragraph 4 of the August 25, 2006 Official Action that the invention is drawn to a symmetrical airfoil having a symmetrical flap. The application does not include the word "symmetrical" and the claims are not limited to symmetrical lifting surfaces or flaps. This statement is an improper characterization of the invention and withdrawal of this characterization is respectfully requested.

The Examiner objects to the form of claims 11, 13, 15, and 17. Applicant will make the requested formal amendments to these claims in a further communication, the form of which depends on the outcome of this Request.

In view of this, it is believed that the rejections of record include a clear factual and/or legal error and cannot be sustained and must be reversed, and such is respectfully requested.